



## NATIONAL OCCUPATIONAL STANDARDS

FOR

## AGRICULTURAL ENGINEER CRAFTSPERSON

LEVEL 5

PROGRAMME ISCED CODE: 0716 454 A



TVET CDACC  
P.O. BOX 15745-00100 NAIROBI

## OPERATE FARM TRACTOR

**UNIT CODE:** 0716 451 03A

**TVET CDACC CODE:** ENG/OS/AGR/CR/01/5/MA

### UNIT DESCRIPTION

This unit specifies the competencies required by an Agricultural Engineering Technologist Level 6 to operate farm tractor. It involves inspecting farm tractor systems, harnessing farm tractor power, service and maintenance of farm tractor systems and repairing farm tractor systems.

### ELEMENTS AND PERFORMANCE CRITERIA

<b>ELEMENT</b>	<b>PERFORMANCE CRITERIA</b>
These describe the key outcomes which make up workplace function.	These are assessable statements which specify the required level of performance for each of the elements. <i><b>Bold and italicized terms are elaborated in the Range.</b></i>
1. Inspect farm tractor systems	1.1 <b>Personal protective equipment</b> is worn based on OSHA 1.2 <b>Farm Tractor system</b> is identified according to manufacturer's manual 1.3 <b>Farm tractor inspection tools and equipment</b> are assembled as per work requirements 1.4 Farm tractor system inspection procedure is carried out as per operator's manual 1.5 A Farm tractor system inspection report is prepared as per work requirements
2. Harness farm tractor power	2.1 Personal protective equipment is worn based on OSHA 2.2 <b>Farm tractor power harnessing tools and equipment</b> are assembled as per work requirements 2.3 Power is harnessed as per work procedure
3. Service and maintain farm tractor systems	3.1 Personal protective equipment is worn based on OSHA 3.2 Service and maintenance schedule is prepared as per maintenance and service manual

	<p>3.3 Pre-start checks are carried out as per operator's manual</p> <p>3.4 Routine scheduled service and maintenance is carried out as per farm tractor service and maintenance manual.</p>
4. Repair farm tractor systems	<p>4.1 Personal protective equipment is worn based on OSHA</p> <p>4.2 <b><i>Tractor system repair tools and equipment</i></b> are assembled as per work requirements</p> <p>4.3 System faults are diagnosed as per manufacturer's manual</p> <p>4.4 Tractor systems repair is carried out as per manufacturer's manual</p> <p>4.5 Tractor systems worn out parts are replaced as per manufacturer's manual</p>

## RANGE

This section provides work environment and conditions to which the performance criteria apply.

It allows for different work environment and situations that will affect performance.

Variable	Range
1. Personal protective equipment may include but are not limited to:	<ul style="list-style-type: none"> <li>• Gloves</li> <li>• Helmet</li> <li>• Face shields</li> <li>• Safety goggles</li> <li>• Safety boots</li> <li>• Overalls</li> <li>• Dust coat</li> <li>• Ear muffs</li> <li>• Face masks</li> </ul>
2. Tractor system may include but are not limited to:	<ul style="list-style-type: none"> <li>• Cooling</li> <li>• Fuel</li> <li>• Lubrication</li> <li>• Ignition</li> <li>• Transmission</li> <li>• Electrical</li> </ul>

	<ul style="list-style-type: none"> <li>• Hydraulic</li> </ul>
3. Farm tractor inspection tools and equipment may include but are not limited to:	<ul style="list-style-type: none"> <li>• Toolbox</li> <li>• Pressure gauge</li> <li>• Multimeter</li> <li>• Greasing gun</li> <li>• Onboard display tester</li> <li>• Torque wrench</li> </ul>
4. Farm tractor power harnessing tools and equipment may include but are not limited to:	<ul style="list-style-type: none"> <li>• PTO shaft</li> <li>• Toplink</li> <li>• Hitch pin</li> <li>• Tool box</li> <li>• Drawbar pin</li> <li>• Hydraulic connecting cables</li> <li>• Electrical connecting cables</li> </ul>
5. Tractor system repair tools and equipment may include but are not limited to:	<ul style="list-style-type: none"> <li>• Jack</li> <li>• Toolbox</li> <li>• Torque wrench</li> <li>• Pullers</li> <li>• Filler gauge</li> <li>• Ring squeezer</li> </ul>

## REQUIRED KNOWLEDGE AND SKILLS

This section describes the knowledge and skills required for this unit of competency.

### Required knowledge

The individual needs to demonstrate knowledge of:

- Different land surface condition
- Machinery shutting down procedure
- Different farm tools and materials
- Waste management and disposal methods
- Occupational safety and health procedures

## The Required Skills

The individual needs to demonstrate the following skills:

- Logical thinking
- Problem solving
- Communication
- Analytical
- Record keeping

## EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills range.

1. Critical aspects of competency	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"><li>1.1 Worn personal protective equipment based on OSHA</li><li>1.2 Inspected farm tractor systems according to manufacturer's manual</li><li>1.3 Prepared farm tractor system inspection report as per work requirements</li><li>1.4 Harnessed farm tractor power based on standard procedures.</li><li>1.5 Serviced and maintained farm tractor systems according to service and maintenance manual.</li><li>1.6 Diagnosed farm tractor system faults as per manufacturer's manual</li><li>1.7 Repaired farm tractor systems as per manufacturer's manual</li><li>1.8 Replaced farm tractor systems worn out parts as per manufacturer's manual</li></ul>
2. Resource implications	<p>The following resources should be provided:</p> <ul style="list-style-type: none"><li>2.1 Appropriately simulated environment where assessment can take place</li><li>2.2 Access to relevant work environment</li></ul>

	2.3 Resources relevant to the proposed activity or tasks
3. Methods of assessment	<p>Competency in this unit may be assessed through:</p> <p>3.1 Practical's</p> <p>3.2 Projects</p> <p>3.3 Portfolio of Evidence</p> <p>3.4 Third Party Reports</p> <p>3.5 Written tests</p> <p>3.6 Oral assessment</p>
4. Context of assessment	<p>Competency may be assessed:</p> <p>4.1 Workplace</p> <p>4.2 Simulated work environment</p>
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector and workplace job role is recommended.